

REMARKSAmendments

In the claims, independent claims 1 and 7 have been amended solely to more clearly define and recite the present invention by defining the reflection array. Basis for this amendment is found on page 7, line 13 to page 8, line 4 of the specification. The amendments are not in any way related to the Examiner's rejection based on prior art or any applied or cited prior art.

Claim 9 has been rewritten in independent form in response to the Examiner's indication that such a claim would be allowable. This claim have been rewritten solely to define and recite the present invention in independent form; the amendments associated with this rewritten claim are not in any way related to the Examiner's rejection based on prior art or any applied or cited prior art.

The Rejection Under 35 USC § 102(e)

Applicants respectfully traverse the rejection of claims 1-2, 7, 10, 13, and 16 under 35 USC § 102(e) as anticipated by Benard et al. (U.S. Patent No. 6,741,237), insofar as the rejection is applicable to the amended claims.

The present invention is directed to an acoustic wave contact detecting apparatus containing a substrate, e.g. a glass substrate, having a surface along which acoustic waves propagate. A reflection array having an array causes the acoustic waves to propagate along the surface of the substrate. The reflection array preferably comprises an array formed on a Y axis at an edge of the substrate and an array formed on an X axis at an edge of the substrate. When an object, e.g. a stylus or a finger, contacts the surface of the substrate and causes changes in the acoustic wave, those changes are detected by a detector and a controller determines the geometric coordinates of the object. In one embodiment, the apparatus contains a spurious wave scattering means on the substrate. The spurious wave scattering means is used to diffuse spurious waves which are generated when acoustic waves are generated. In another embodiment, the apparatus further comprises a mode converting element, e.g. in the form of a grating on the surface of the substrate, and a diffusing portion for diffusing spurious waves. The apparatus of the invention allows effective scattering and elimination of spurious waves (which otherwise would be received as noise), providing increased productivity and decreased manufacturing costs.

Benard et al. discloses a touch screen in which a number of acoustic wave transducers are coupled to a substrate. An acoustic wave, generated by at least one transducer, propagates along the substrate, and is received by the other transducers. The location of a touch on the substrate can be determined based on the time associated with travel of the acoustic wave from the transmitter to the location of the perturbation (i.e. the touch), and from the perturbation to each of the respective receivers. Unlike the apparatus presently claimed, Benard does not teach the presence of a “reflection array” as part of his touch screen. Although the Examiner has identified “grating 114” as a reflection array, in fact grating 114 corresponds to a “mode converting element” of the present claims. As set forth in column 6, lines 18-21, the “grating 114 is configured and oriented to reflect or redirect the longitudinal wave from the transducer 102 about 90 degrees and *convert the longitudinal wave to a SAW*” (emphasis added). This is the function of the mode converting element: “[t]he *mode converting elements* (acoustic wave generating means) denoted by referenced numerals 78 and 80 *convert bulk waves* generated by the transmission side converts 8 and 10 *into surface acoustic waves*” (page 9, lines 2-6; emphasis added). The mode converting element and the reflection array of the present claims are separate components: “[t]he mode converting element 80 converts the ultrasonic vibrations to surface acoustic waves, which are propagated (reflected) perpendicular to the ridges 80a, toward the reflection array 32 (page 9, lines 13-16). Thus, Benard does not anticipate the present claims.

The Rejection Under 35 USC § 103(a)

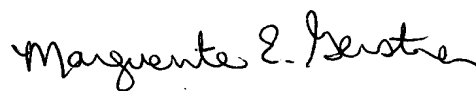
Applicants respectfully traverse the rejection of claims 3-6, 8, 11-12, 14-15, and 17-20 under 35 USC § 103(a) as unpatentable over Benard et al. (U.S. Patent No. 6,741,237) in view of Kadota et al. (U.S. Patent No. 5,260,913), insofar as the rejection is applicable to the amended claims.

The deficiencies of Benard are not resolved by the addition of Kadota et al. Kadota discloses the use of interdigital transducers, not grating transducers, and teaches that coating an interdigital transducer on a piezoelectric substrate with an elastic material provides a simplified package and resonance stability. Kadota does not teach the presence of a reflection array, still less the presence of a reflection array in combination with the features presently claimed. Furthermore, one seeking to make an acoustic wave contact detecting apparatus using a glass substrate would not look to Kadota, which is directed to a piezoelectric substrate. Therefore, the rejection is unfounded.

Conclusion

It is believed that this application is now in condition for allowance and such action at an early date is earnestly requested. If, however, there are any outstanding issues which can be usefully discussed by telephone, the Examiner is asked to call the undersigned.

Respectfully submitted,

A handwritten signature in cursive script, reading "Marguerite E. Gerstner".

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